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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/909,809	07/23/2001	Mayumi Tomikawa	522.1921D3	6031

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EXAMINER

DEJONG, ERIC S

ART UNIT	PAPER NUMBER
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1631

DATE MAILED: 02/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/909,809

Applicant(s)

TOMIKAWA ET AL.

Examiner

Eric S. DeJong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01/23/2004 and 11/17/2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16, 17 and 23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16, 17 and 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 16, 17 and 23 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1 page 5/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of claims 16, 17, and 23 of Group III (claims 13-17 and 21-23) in the reply filed on 01/23/2004 is acknowledged. The traversal is on the grounds that applicant refers to a Preliminary amendment canceling claims 1-15 and 18-22 in the instant application; however, no such amendment is presently on record. Examiner has also noted that in the completed Fee Worksheet (PTO-875) and Claims Worksheet (PTO-2022) filed on 07/23/2001 reflect that a total of 3 claims, 2 independent claims and 1 dependent claim, were recorded at the time of filing for the instant application. These documents support the applicant's assertion that a Preliminary amendment was submitted at the time the application was filed canceling claims 1-15 and 18-22 and leaving only claims 16, 17, and 23 pending. As such, the Examiner has found the applicants arguments convincing and **withdraws** the previous restriction requirement filed on 09/23/2003.

Applicants response to the Notice of Non-Compliant Amendment filed on 11/17/2004 is acknowledged. The re-submitted list of claims is accepted and replaces all prior versions of the claims in the instant application. Claims 1-15 and 18-22 are canceled. Claims 16, 17, and 23 are pending.

Title/Abstract

The title and abstract of the invention is not descriptive and do not reflect the claimed invention. A new title and abstract are required which are clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 16 and 17 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Instant claims 16 and 17 are directed to an abstract process of modeling three-dimensional structures of proteins only and as such correspond to non-statutory subject matter. See the MPEP § 2106 (IV),(B),(2),(b) subsection (ii). Rather than being directed to a practical application, the methods recited in claims 16 and 17 relate only to the abstract ideas and mathematical steps that segregate point sets and subsets, optimized correspondence combinations, and the calculation of root mean square distances between all elements. For such subject matter to be statutory, the claimed process must be limited to a practical application of the abstract idea or mathematical algorithm in the technological arts. A claim is limited to a practical application when the method, as claimed, produces a concrete, tangible and useful result; i.e., the method recites a step or act of producing something that is concrete, tangible and useful. Likewise, a machine claim is statutory when the machine, as claimed, produces a concrete, tangible and

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useful result and/or when a specific machine is being claimed. For example, a computer process that simply calculates a mathematical algorithm that models noise is nonstatutory. However, a claimed process for digitally filtering noise employing the mathematical algorithm is statutory.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 16, 17, and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by US 4,853,871 or Holak et al. (J. Mol. Biol., 210, 653-648) or Flaherty et al. (Proc. Natl. Acad. Sci. USA, 88, 5041-5045) or Mosimann et al. (Proteins: Structure, Function and Genetics, 14, 392-400, 1992).

The instant claims are drawn to methods and a system of analyzing three-dimensional structures by generating generic optimized correspondences between set points describing two three-dimensional structures and calculating root mean square deviations (RMSD) between corresponding elements. As such, the claims read on any reference teaching comparison of two three dimensional structures and calculating RMSD therefor. The following references are exemplary of this commonly used approach to comparing 3D structures.

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US 4,853,871 describes a method and means for evaluating protein's structure comprising comparing first set of three-dimensional coordinates of two amino acid residues with geometric conformation (i.e., with second set of three-dimensional coordinates) possessed by atoms of a disulfide bond. See for example claims 1, 2, and 6 and the summary of the invention, column 3, line 35 through column 4, line 40.

Holak et al. teach comparing three-dimensional structures of 34 structures of trypsin inhibitor with minimized mean structure, and calculating RMSD between structures. See abstract.

Flaherty et al. describe a comparison of muscle actin and heat shock cognate protein and demonstrate that calculation of RMSD between comparable spatial fragments shows close similarity of the structures of these proteins. See abstract.

Mosimann et al. describe a process for comparison of molecular models of P-30 protein and pancreatic RNAase. The all atom superposition of active site residues of the P-30 and an identically minimized RNAase structure has a root square deviation of 0.52 Å. See abstract.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Omum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double

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patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 16, 17, and 23 rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 14 of U.S. Patent No. 6,453,064. Although the conflicting claims are not identical, they are not patentably distinct from each other because the references claims are drawn to an "extraction apparatus", which is a set of means to execute the instantly claimed method and system; therefore, the instantly claimed method will, obviously, be executed by the references apparatus.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric S. DeJong whose telephone number is (571) 272-6099. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ardin Marschel, Ph.D. can be reached on (571) 272-0718. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EDJ



Ardin H. Marschel 1/31/05
ARDIN H. MARSCHEL
PRIMARY EXAMINER